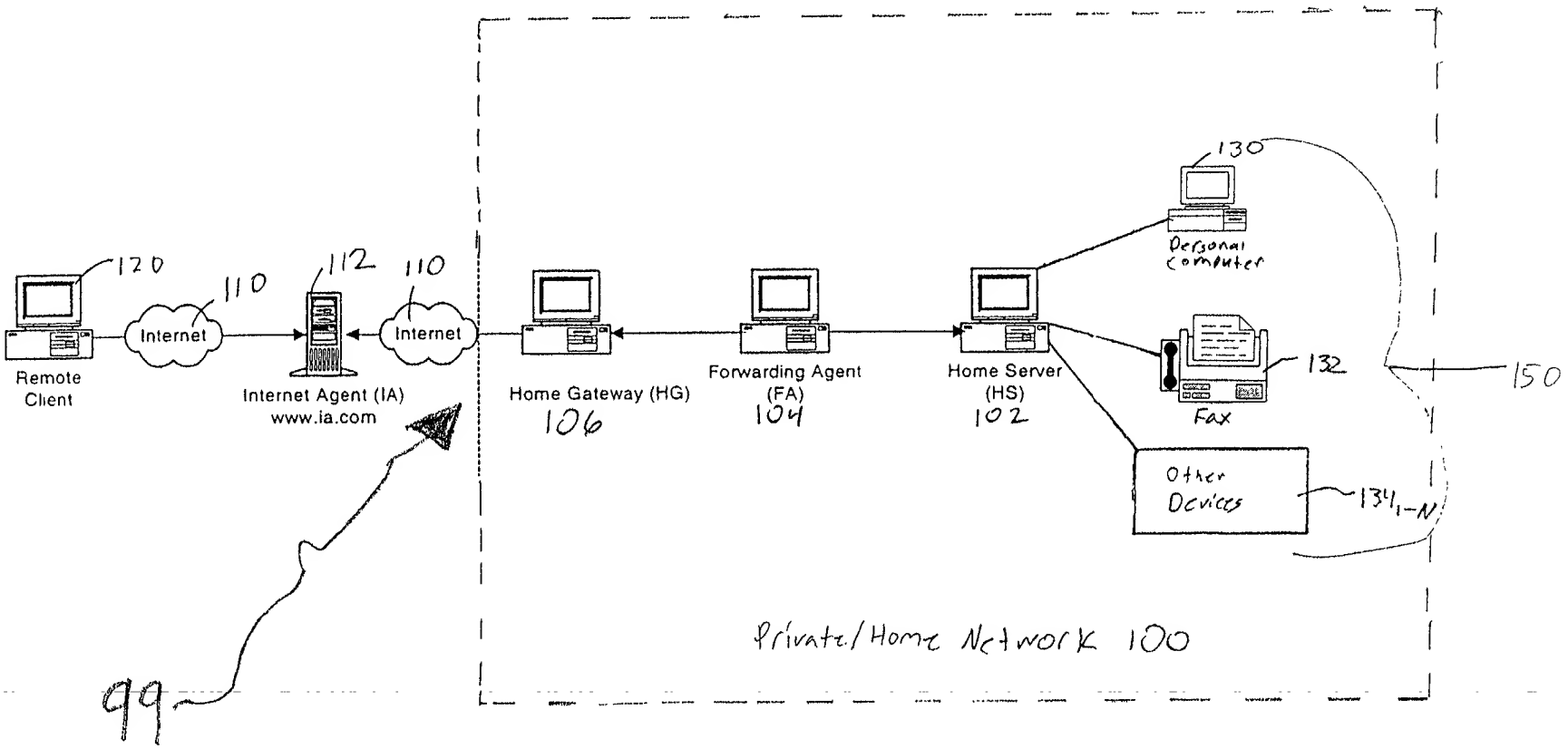
120
110
112
110
130
Personal computer
Remote Client
Internet
Internet Agent (IA)
www.ia.com
Internet
Home Gateway (HG)
106
Forwarding Agent
(FA)
104
Home Server
(HS)
102
132
Fax
150
Other Devices
134 1-N
Private/Home Network 100
99

Figure 1a

20060720.1625.9868

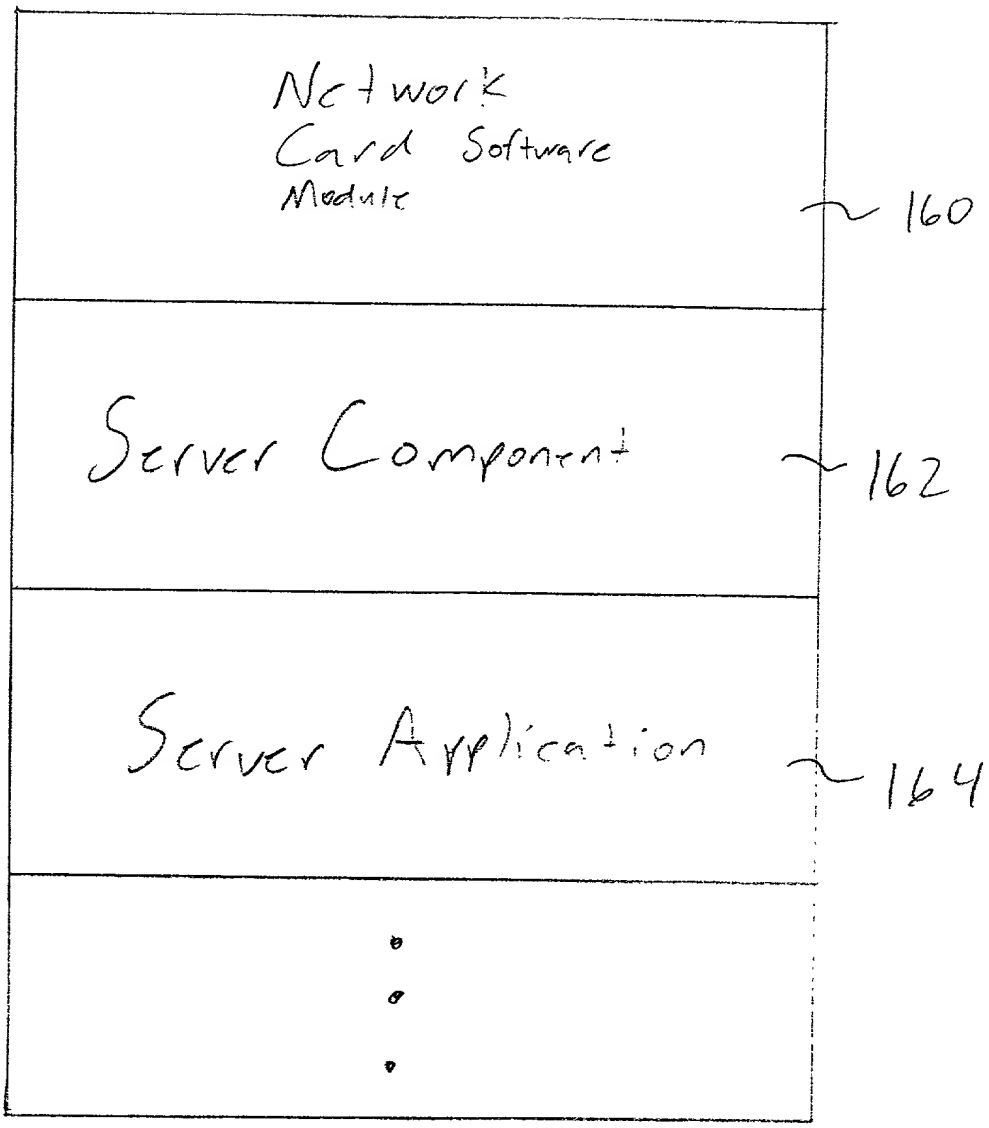

Figure 1b

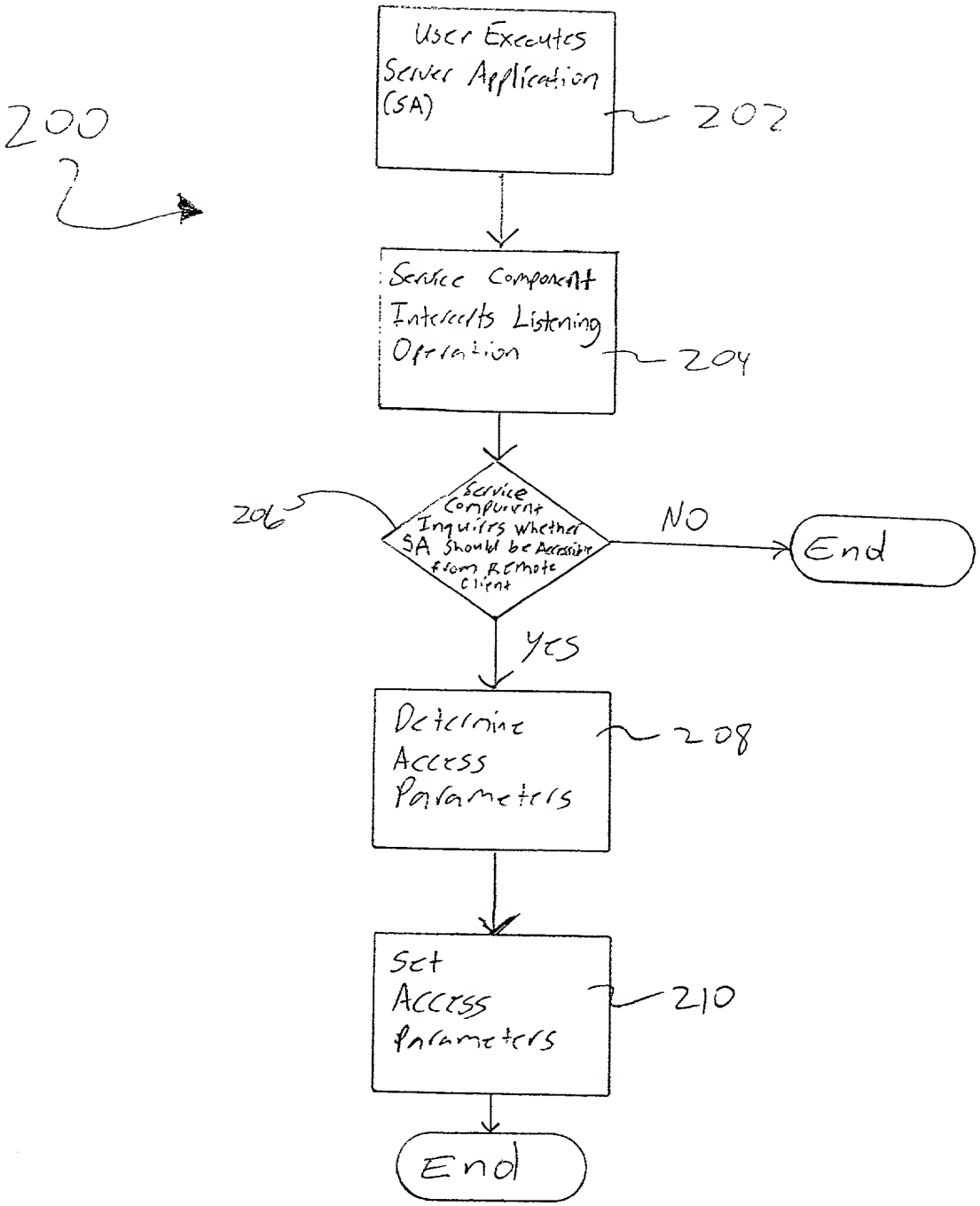
200
User Executes Server Application (SA)
202
Service Component Intercepts Listening Operation
204
Service Component Inquires whether SA should be Accessible from Remote Client
206
NO
End
yes
Determine Access Parameters
208
Set Access Parameters
210
End

Figure 2

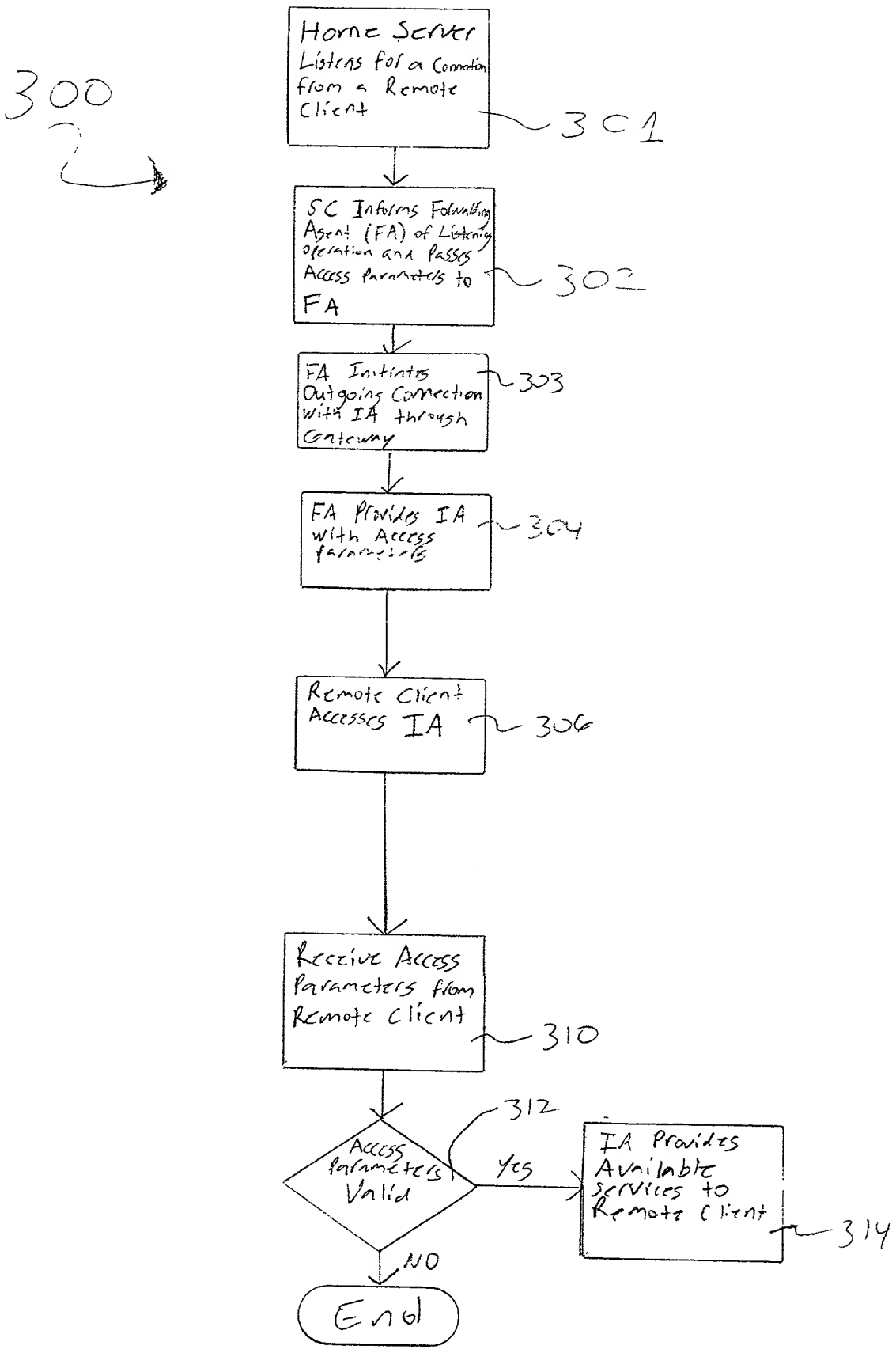
300
Home Server Listens for a Connection from a Remote Client
301
SC Informs Formatting Agent (FA) of Listening Operation and Passes Access Parameters to FA
302
FA Initiates Outgoing Connection with IA through Gateway
303
FA Provides IA with Access Parameters
304
Remote Client Accesses IA
306
Receive Access Parameters from Remote Client
310
Access Parameters Valid
312
Yes
IA Provides Available Services to Remote Client
314
NO
End

Figure 3

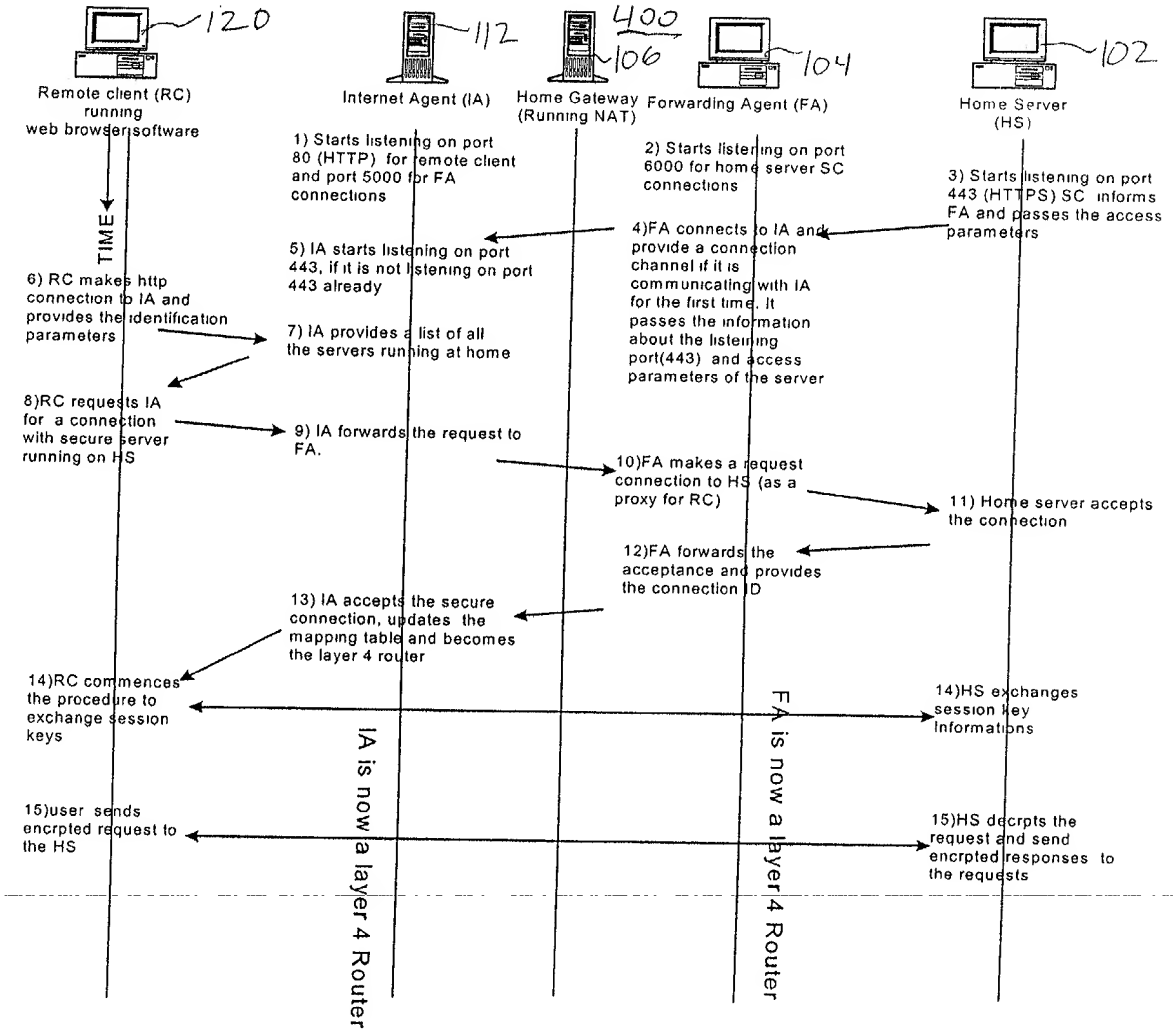
120
112
400
106
104
102
Remote client (RC) running web browser software
Internet Agent (IA)
Home Gateway (Running NAT)
Forwarding Agent (FA)
Home Server (HS)
TIME
1) Starts listening on port 80 (HTTP) for remote client and port 5000 for FA connections
2) Starts listening on port 6000 for home server SC connections
3) Starts listening on port 443 (HTTPS) SC informs FA and passes the access parameters
4)FA connects to IA and provide a connection channel if it is communicating with IA for the first time. It passes the information about the listening port(443) and access parameters of the server
5) IA starts listening on port 443, if it is not listening on port 443 already
6) RC makes http connection to IA and provides the identification parameters
7) IA provides a list of all the servers running at home
8)RC requests IA for a connection with secure server running on HS
9) IA forwards the request to FA.
10)FA makes a request connection to HS (as a proxy for RC)
11) Home server accepts the connection
12)FA forwards the acceptance and provides the connection ID
13) IA accepts the secure connection, updates the mapping table and becomes the layer 4 router
14)RC commences the procedure to exchange session keys
14)HS exchanges session key informations
15)user sends encrpted request to the HS
15)HS decrpts the request and send encrpted responses to the requests
IA is now a layer 4 Router
FA is now a layer 4 Router

Figure 4